Massachusetts Department of Public Health
Bureau of Environmental Health Assessment

Environmental Public Health Center – Cape Cod, Massachusetts

Recreational Use Of Water Bodies On Or Near
The Massachusetts Military Reservation (MMR)

Community Fact Sheet – Annual Update, May 2002

This fact sheet addresses health concerns related to recreational use of selected Upper Cape Cod water bodies and reflects the results of recent chemical testing (see map). Bacterial sampling is performed routinely for swimming waters by the boards of health during the summer months. For specific information about bacterial sampling, contact your local board of health. (See last page for local boards of health contact information).

Based on the available data, water bodies tested near the MMR are safe for swimming, wading, boating and fishing. However, the Massachusetts Department of Public Health (MDPH) has posted fish consumption advisories due to elevated mercury levels in many ponds across Massachusetts, including Johns Pond, Ashumet Pond, Snake Pond, Mashpee-Wakeby Pond, and Peters Pond.

Q: Can I safely swim, wade or boat in surface waters at or near the MMR?

A: Yes, based on the currently available chemical data, all of the water bodies shown in Table 1 are safe for swimming, wading and boating. Table 1 summarizes the 30 water bodies on or near the MMR that were sampled and analyzed for contaminants between 1997 and 2002. Low levels of volatile and semi-volatile organic compounds (VOCs & SVOCs) were occasionally detected in some surface waters. None of these detections appear to pose any health risk for these recreational activities.

Q: Can I safely fish in surface waters at or near the MMR?

A: Catch-and-release fishing, which means fish that are caught recreationally are released back into the water body unharmed, is safe for all water bodies near the MMR. However, mercury has been detected in fish at levels warranting a Public Health Fish Consumption Advisory for fish from Johns, Ashumet, Snake, Mashpee-Wakeby, and Peters ponds. Refer to **Table 1** for a detailed explanation of these advisories. Mercury levels in these fish are not believed to be MMR related.

In addition, many Bullhead Catfish in Johns and Ashumet ponds have papillomas (wart-like growths). Although papillomas may be unappealing for aesthetic reasons, there are no known health risks from eating fish with papillomas.

Q: What is the MDPH statewide fish consumption advisory for mercury?

A: In 1994, the MDPH issued a statewide advisory recommending that until more representative information is available on mercury concentrations in fish in Massachusetts freshwater bodies, women should refrain from consumption of freshwater fish while they are pregnant. In 2001, MDPH expanded this advisory to include women of childbearing age who may become pregnant, nursing mothers, and children under 12 years of age. Mercury is naturally occurring in the earth's crust and thus natural land erosion may contribute to releases of mercury into the environment. Inorganic mercury may enter the air through burning of fossil fuels, mining, and waste or industrial emissions. In freshwater bodies, small organisms convert inorganic mercury to the organic form, methylmercury. Methylmercury enters the aquatic food chain by binding with particles and sediment eaten by fish. MDPH has issued other important recommendations for fish consumption. For more information, call 617-624-5757 or visit the MDPH website at http://www.state.ma.us/dph/beha/beha.htm.

Q: How can the ponds be safe for swimming but contain fish that are not safe for eating?

A: While there is a fish consumption advisory for mercury, there is no known health risk related to mercury from activities such as swimming, boating or catch-and-release fishing in ponds that have health advisories. Because fish build up mercury levels in their tissue, mercury can accumulate in fish to levels that are sometimes thousands of times greater than the surrounding waters. Swimming, boating and handling of fish are not likely to expose individuals to elevated levels of mercury.

Q: Have any shellfish data been collected?

A: In response to community concerns regarding the Fuel Spill-28 groundwater plume in Falmouth, MDPH and the Massachusetts Division of Marine Fisheries (MDMF) collected oysters, quahogs and ribbed mussels from Great Pond in Falmouth, and Waquoit Bay in April and August of 1997 for EDB analysis. No EDB was detected in these samples. In September 1997, in response to concerns about the Landfill-1 (LF-1) groundwater plume, MDPH and MDMF collected oysters, quahogs, soft-shell clams, and ribbed mussels from Red Brook Harbor. In September 2001, MDPH and MDMF collected quahogs and oysters from Red Brook Harbor and oysters from Squeteague Harbor. None of these samples from 1997 and 2001 had detections of VOCs associated with the LF-1 groundwater plume.

Q: Ethylene dibromide (EDB), Royal Demolition Explosive (RDX), and perchlorate, were detected in 2001 in groundwater below Snake Pond. Are there possible health impacts related to recreational use of Snake Pond?

A: Surface water samples from the public beach and Camp Good News areas of Snake Pond have been collected since 1996 for EDB, and 2001 for RDX and perchlorate. None of these compounds have been detected in surface water based on data available through April 2002. Thus, adverse health effects are not expected from opportunities for exposure to these chemicals. As a precautionary measure, biweekly sampling of surface water and pore water (or water found in sediment) will continue as in previous recreational seasons. During 2002, samples will be analyzed for EDB, explosives, and perchlorate. In addition, at the request of the MMR Plume Cleanup Team, VOCs will also be analyzed in surface water samples taken during the 2002 recreational season.

Q: Should I be concerned about ethylene dibromide (EDB) in the Coonamessett and Quashnet rivers?

A: EDB was discovered to be present in surface water of the Coonamessett River in 1996 and in the Quashnet River in 1997. A number of cleanup actions have been taken since then, and routine monitoring of these rivers and their associated bogs is ongoing. While some long-term residents may have been at risk for exposure in the past, current sampling data do not suggest exposures that would present health concerns. Since May 2000, no EDB has been detected in either the Coonamessett or Quashnet rivers. EDB has been detected in surface water of one bog (Upper Baptiste Bog) associated with the Coonamessett River and primarily in one bog (K6 Bog) associated with the Quashnet River. Infrequent contact with these EDB levels in these bogs is not likely to present a health hazard.

Q: How can it be safe to swim and fish in Johns and Ashumet ponds when there are contaminated groundwater plumes upwelling at the bottom?

A: Storm Drain-5 (SD-5) and Chemical Spill-10 (CS-10) groundwater plumes have been found to be upwelling in the northwest portion of Johns Pond. CS-10 and Ashumet Valley groundwater plumes have also been found to be upwelling in the northwest portion of Ashumet Pond. The highest concentration detected to date in Johns Pond surface water is 3.46 parts per billion (ppb) of trichloroethylene (TCE) (the primary contaminant of concern) about 6 inches above the bottom of the pond. This sample was collected in January 1999 in an area approximately 5 feet deep. The safe drinking water standard is 5 ppb. Therefore, opportunities for exposure to TCE in Johns Pond surface water are not expected to result in health effects. To date, surface water samples collected at the CS-10 upwelling area in Ashumet Pond have not detected TCE. However, based on sampling results from Johns Pond, MDPH recommended AFCEE monitor surface water in Ashumet

and Johns ponds throughout the summer season as a precautionary measure. These samples, collected monthly in 1999, 2000, and 2001, by the Mashpee Board of Health, showed no detection of TCE in surface water. Surface water samples will also be collected during the 2002 summer season.

Q: Are there any other ponds on the Upper Cape that have contaminants upwelling as a result of non MMR-related groundwater contaminant plumes?

A: Two compounds associated with the J. Braden Thompson plume (PCE and TeCA or 1,1,2,2-tetrachloroethane) were found at low levels in the Pickerel Cove area of Mashpee-Wakeby Pond. The latest available testing results showed PCE at a level that was less than drinking water standards, while the second compound TeCA was slightly higher than guidelines established for drinking water. Given that standards and guidelines associated with consumption of drinking water are purposely conservative, recreational uses of Mashpee-Wakeby Pond are not expected to result in health concerns.

For more information on this fact sheet,
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